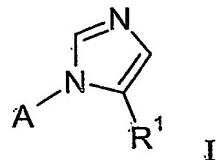


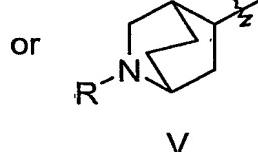
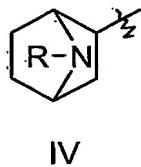
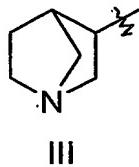
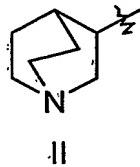
## CLAIMS

1. A compound according to formula I:



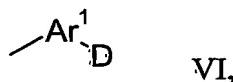
5 wherein:

A represents:



where R represents hydrogen or methyl, and

R<sup>1</sup> represents hydrogen or a moiety of Formula VI



10

wherein:

Ar<sup>1</sup> is selected from a 5- or 6-membered aromatic or heteroaromatic ring having 0, 1 or 2 nitrogen atoms, 0 or 1 oxygen atoms, and 0 or 1 sulfur atoms, or selected from an 8-, 9- or 10-membered fused aromatic or heteroaromatic ring system having 0, 1, 2 or 3 nitrogen atoms, 0 or 1 oxygen atoms, and 0 or 1 sulfur atoms;

15 D is selected from hydrogen, NR<sup>2</sup>R<sup>3</sup>, or E-Ar<sup>2</sup>;

wherein

E is a single bond, -O-, -S-, or -NR<sup>3</sup>-;

20 Ar<sup>2</sup> is selected from a 5- or 6-membered aromatic or heteroaromatic ring having 0, 1 or 2 nitrogen atoms, 0 or 1 oxygen atoms, and 0 or 1 sulfur atoms;

where each Ar<sup>1</sup> or Ar<sup>2</sup> moiety may be unsubstituted or bear 1, 2 or 3 substituents selected from -R<sup>3</sup>, -C<sub>1</sub>-C<sub>6</sub>alkyl, -C<sub>2</sub>-C<sub>6</sub>alkenyl, -C<sub>2</sub>-C<sub>6</sub>alkynyl, halogen, -CN, -NO<sub>2</sub>, -CF<sub>3</sub>, -S(O)<sub>n</sub>R<sup>3</sup>, -NR<sup>2</sup>R<sup>3</sup>, -CH<sub>2</sub>NR<sup>2</sup>R<sup>3</sup>, -OR<sup>3</sup>, -CH<sub>2</sub>OR<sup>3</sup> or -CO<sub>2</sub>R<sup>4</sup>;

25 R<sup>2</sup> and R<sup>3</sup> are independently selected at each occurrence from hydrogen, -C<sub>1</sub>-C<sub>4</sub>alkyl, aryl, heteroaryl, -C(O)R<sup>4</sup>, -C(O)NHR<sup>4</sup>, -CO<sub>2</sub>R<sup>4</sup> or -SO<sub>2</sub>R<sup>4</sup>, or

R<sup>2</sup> and R<sup>3</sup> in combination is -(CH<sub>2</sub>)<sub>j</sub>G(CH<sub>2</sub>)<sub>k</sub>- wherein G is oxygen, sulfur, NR<sup>4</sup>, or a bond;

j is 2, 3 or 4;

k is 0, 1 or 2;

n is 0, 1 or 2, and

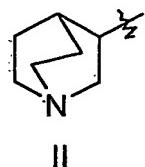
R<sup>4</sup> is independently selected at each occurrence from hydrogen, -C<sub>1-4</sub>alkyl, aryl, or

5 heteroaryl;

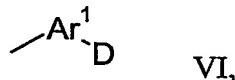
and stereoisomers, enantiomers, *in vivo*-hydrolysable precursors and pharmaceutically-acceptable salts thereof.

2. A compound according to Claim 1 wherein:

10 A represents:



R<sup>1</sup> represents hydrogen or a moiety of Formula VI



wherein:

15 Ar<sup>1</sup> is selected from a 5- or 6-membered aromatic or heteroaromatic ring having 0 or 1 nitrogen atoms, 0 or 1 oxygen atoms, and 0 or 1 sulfur atoms;

D is selected from hydrogen, NR<sup>2</sup>R<sup>3</sup>, or E-Ar<sup>2</sup>;

wherein:

E is a single bond, -O-, -S-, or -NR<sup>3</sup>-;

20 Ar<sup>2</sup> is selected from a 5- or 6-membered aromatic or heteroaromatic ring having 0 or 1 nitrogen atoms, 0 or 1 oxygen atoms, and 0 or 1 sulfur atoms;

where each Ar<sup>1</sup> or Ar<sup>2</sup> moiety may be unsubstituted or bear 1, 2 or 3 substituents selected from halogen, -CN, -NO<sub>2</sub>, -CF<sub>3</sub>, -CH<sub>3</sub> or -C<sub>2</sub>H<sub>5</sub>;

25 R<sup>2</sup> and R<sup>3</sup> are independently selected at each occurrence from hydrogen, -C<sub>1-C4</sub>alkyl, aryl, heteroaryl, or

R<sup>2</sup> and R<sup>3</sup> in combination is -(CH<sub>2</sub>)<sub>j</sub>G(CH<sub>2</sub>)<sub>k</sub>- wherein G is oxygen;

j is 2, 3 or 4;

k is 0, 1 or 2;

and stereoisomers, enantiomers, *in vivo*-hydrolysable precursors and pharmaceutically-acceptable salts thereof.

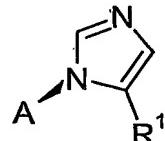
3. A compound according to Claim 1, wherein A represents:



II

5 or an enantiomer thereof, and pharmaceutically-acceptable salts thereof.

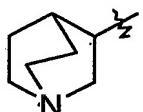
4. A compound according to Claim 1, wherein said compound is an R-isomer in accord with formula VII,



VII

10 wherein A and R<sup>1</sup> are as defined for compounds of formula I.

5. A compound according to Claim 4, wherein A is of formula II



II

15 and R<sup>1</sup> is as defined for compounds of formula I.

6. A compound according to Claim 1, wherein E represents a single bond; or an enantiomer thereof, and pharmaceutically-acceptable salts thereof.

20

7. A compound according to Claim 1, wherein Ar<sup>1</sup> is thiophenyl.

8. A compound according to Claim 1, wherein Ar<sup>1</sup> is thiophenyl and Ar<sup>2</sup> is selected from hydrogen, halogen, phenyl, furanyl or thiophenyl having optional substituents.

25

9. A compound according to Claim 1, wherein one or more of the atoms is a radioisotope of the same element.

10. A method of treatment or prophylaxis of a disease or condition in which activation of  
5 the  $\alpha 7$  nicotinic receptor is beneficial which method comprises administering a therapeutically-effective amount of a compound according to Claim 1 to a subject suffering from said disease or condition.

11. The method of Claim 10, wherein said disease or condition is anxiety, schizophrenia,  
10 mania or manic depression.

12. A method of treatment or prophylaxis of neurological disorders, psychotic disorders or intellectual impairment disorders, which comprises administering a therapeutically effective amount of a compound according to Claim 1.

15 13. The method of Claim 12, wherein said disorder is Alzheimer's disease, learning deficit, cognition deficit, attention deficit, memory loss, Attention Deficit Hyperactivity Disorder, Parkinson's disease, Huntington's disease, Tourette's syndrome, neurodegenerative disorders in which there is loss of cholinergic synapses, jetlag, nicotine addiction, craving, pain, and for ulcerative colitis, which comprises administering a therapeutically effective amount of a compound according to Claim 1.

20 14. A method for inducing the cessation of smoking comprising administering an effective amount of a compound according to Claim 1.

25 15. A pharmaceutical composition comprising a compound according to Claim 1 and a pharmaceutically-acceptable diluent, lubricant or carrier.

16. A method of treatment or prophylaxis of a disease or condition in which activation of  
30 the  $\alpha 7$  nicotinic receptor is beneficial which method comprises administering a therapeutically-effective amount of a pharmaceutical composition according to Claim 15 to a subject suffering from said disease or condition.

17. The method of Claim 16, wherein said disease or condition is anxiety, schizophrenia, mania or manic depression.

18. A method of treatment or prophylaxis of neurological disorders, psychotic disorders or 5 intellectual impairment disorders, which comprises administering a therapeutically effective amount of a pharmaceutical composition according to Claim 15.

19. The method of Claim 12, wherein said disorder is Alzheimer's disease, learning deficit, cognition deficit, attention deficit, memory loss, Attention Deficit Hyperactivity 10 Disorder, Parkinson's disease, Huntington's disease, Tourette's syndrome, neurodegenerative disorders in which there is loss of cholinergic synapses, jetlag, nicotine addiction, craving, pain, and for ulcerative colitis, which comprises administering a therapeutically effective amount of a pharmaceutical composition according to Claim 15.

15 20. A method for inducing the cessation of smoking comprising administering an effective amount of a pharmaceutical composition according to Claim 15.

21. The use of a compound according to Claim 1, an enantiomer thereof or a 20 pharmaceutically-acceptable salt thereof, in the manufacture of a medicament for the treatment or prophylaxis of human diseases or conditions in which activation of the  $\alpha_7$  nicotinic receptor is beneficial selected from neurological disorders, psychotic disorders, intellectual impairment disorders, Alzheimer's disease, learning deficit, cognition deficit, attention deficit, memory loss, Attention Deficit Hyperactivity Disorder, anxiety, schizophrenia, mania or manic depression, Parkinson's disease, Huntington's disease, 25 Tourette's syndrome, or neurodegenerative disorders in which there is loss of cholinergic synapses.

22. The use of a compound according to Claim 1, in the manufacture of a medicament for the treatment or prophylaxis of jetlag, pain, or ulcerative colitis or to facilitate the cessation of 30 smoking or the treatment of nicotine addiction or craving including that resulting from exposure to products containing nicotine.